

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
6 October 2005 (06.10.2005)

PCT

(10) International Publication Number  
**WO 2005/093831 A1**

(51) International Patent Classification<sup>7</sup>:

**H01L 23/49**

(21) International Application Number:

PCT/US2005/004459

(22) International Filing Date: 14 February 2005 (14.02.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/544,800 13 February 2004 (13.02.2004) US  
60/579,967 15 June 2004 (15.06.2004) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

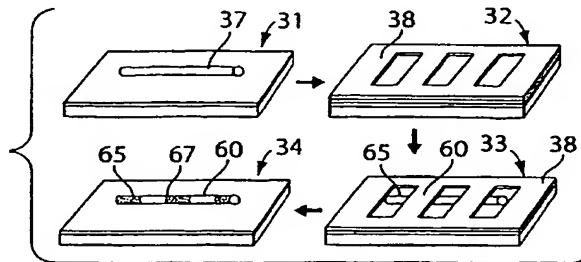
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: NANOSTRUCTURES CONTAINING METAL-SEMICONDUCTOR COMPOUNDS



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(57) Abstract: The present invention generally relates to devices and components for use in nanotechnology and sub-microelectronic circuitry that include metal-semiconductor compounds such as metal silicides. The present invention also, in some embodiments, provides methods of forming such devices and components by allowing a first material to diffuse into a second material, optionally creating a new compound. Thus, as an example, metal atoms are allowed to diffuse into a semiconductor to create the metal-semiconductor compound. In some cases, the device may include a component that is a single crystal. Certain metal-semiconductor compounds of the invention have novel physical/electrical properties, for example, low resistivities, high conductivities, high current density capacities, and the like. In some embodiments, a component of the invention may have two or more regions that differ in composition, where one or both of the regions can include a metal-semiconductor compound. In some cases, the regions may be created by using a mask or a nanoscale wire to define the two or more regions.